

Section 4. ADF/VOR ORIENTATION

5-4-1. ACTIONS REQUIRED

When providing ADF/VOR orientation services to an aircraft in emergency status:

- Determine if the aircraft is in VFR or IFR weather conditions, fuel remaining, altitude, and heading.
- If the aircraft is operating in IFR weather conditions, coordinate with the appropriate control facility.
- Determine if the aircraft is on a flight plan. If the aircraft is not on an IFR flight plan and is in VFR weather conditions, advise the pilot to remain VFR.

5-4-2. ADF ORIENTATION/ADF CROSSFIX

When using ADF orientation and/or crossfix procedures, determine the aircraft's position as follows:

a. Position Fixing.

- Advise the pilot to remain VFR, and provide local altimeter setting.

PHRASEOLOGY-

MAINTAIN V-F-R AT ALL TIMES. ADVISE IF HEADING OR ALTITUDE CHANGE IS NECESSARY TO REMAIN V-F-R. (Location) ALTIMETER (setting).

- Obtain heading and altitude. Advise the pilot to maintain straight and level flight and to align the heading indicator with the magnetic compass.

PHRASEOLOGY-

MAINTAIN STRAIGHT AND LEVEL FLIGHT. RESET YOUR HEADING INDICATOR TO AGREE WITH YOUR MAGNETIC COMPASS. AFTER YOU HAVE DONE THIS, SAY YOUR HEADING AND ALTITUDE.

- Determine the weather and the fuel conditions.

PHRASEOLOGY-

WHAT IS THE WEATHER AT YOUR ALTITUDE AND FUEL REMAINING IN TIME?

- Advise the pilot to maintain the same heading, verify the aircraft has ADF equipment, and determine the airspeed.

PHRASEOLOGY-

CONTINUE HEADING (degrees). WHAT TYPE OF NAVIGATIONAL EQUIPMENT DO YOU HAVE ON BOARD, AND WHAT IS YOUR AIRSPEED?

- Advise the pilot to tune the ADF receiver to the NDB. Provide the NDB name, identifier, and frequency.

PHRASEOLOGY-

TUNE YOUR A-D-F RECEIVER TO THE (name) RADIO BEACON, FREQUENCY (frequency), IDENTIFICATION (ident). CHECK VOLUME UP AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

- After acknowledgment has been received, advise the pilot to set the ADF function switch to the ADF position and report the reading.

PHRASEOLOGY-

IF YOU HAVE A ROTATING COMPASS CARD (ROSE) ON YOUR A-D-F INDICATOR, MAKE CERTAIN NORTH IS AT THE TOP OF THE DIAL. TURN THE FUNCTION SWITCH TO THE A-D-F POSITION. WHEN THE NEEDLE STABILIZES, ADVISE THE A-D-F NEEDLE READING.

REFERENCE-

The Instrument Flying Handbook. North may mean "north, N, zero (0) or 360."

- Compute the magnetic bearing.

NOTE-

Relative Bearing (RB) + Magnetic Heading (MH) = Magnetic Bearing (MB)

If the MB exceeds 360 degrees, subtract 360 to determine MB; i.e., 480 degrees - 360 degrees = 120 degrees MB.

- Advise the pilot of direction from the NDB.

PHRASEOLOGY-

YOU ARE (direction) OF THE (name) RADIO BEACON.

b. Orientation.

- Turn the aircraft inbound to the NDB being used. Provide the direction of the turn and the heading to be flown. Advise the pilot to report when established on that heading.

PHRASEOLOGY-

FOR A-D-F ORIENTATION, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

- Notify the appropriate control facility. Provide all required information including the aircraft's position and heading.

- Verify that the aircraft is established on a line of position to the NDB.

PHRASEOLOGY-

WHAT IS YOUR A-D-F NEEDLE READING?

- Provide heading adjustments as needed for the aircraft to continue inbound to the NDB.

(a) If the pilot indicates an ADF reading other than 3-6-0, compute the new heading and advise the aircraft.

PHRASEOLOGY-

TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

(b) After pilot reports established and needle is on 3-6-0, heading adjustments are not necessary.

PHRASEOLOGY-

CONTINUE HEADING (degrees).

c. Crossfixing. After the aircraft is established inbound to the NDB, use the following procedures:

1. Advise the pilot to tune the ADF receiver to the NDB to be used for crossfixing. Provide the NDB name, identifier, and frequency.

PHRASEOLOGY-

TUNE YOUR A-D-F RECEIVER TO THE (name) RADIO BEACON, FREQUENCY (frequency), IDENTIFICATION (identification). CHECK VOLUME UP AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

2. After acknowledgment has been received, request ADF reading.

PHRASEOLOGY-

WHEN THE NEEDLE STABILIZES, ADVISE THE A-D-F NEEDLE READING.

3. Compute and plot the second line of position.

NOTE-

The intersection of the two lines of position is the aircraft's position at the time of the second ADF reading.

4. Advise the pilot of the aircraft's position and the safe altitude for orientation in that area.

PHRASEOLOGY-

YOU ARE (miles)(direction) OF THE (name) RADIO BEACON. THE SAFE ALTITUDE FOR ORIENTATIONS IN THAT AREA IS (feet).

5. Request pilot's intentions and provide assistance, as requested.

PHRASEOLOGY-

WHAT ARE YOUR INTENTIONS?

5-4-3. VOR ORIENTATION/VOR CROSSFIX

When using VOR orientation and/or crossfix procedures, determine the aircraft's position as follows:

a. Position Fixing.

1. Advise the pilot to remain VFR and provide the local altimeter setting.

PHRASEOLOGY-

MAINTAIN V-F-R AT ALL TIMES. ADVISE IF HEADING OR ALTITUDE CHANGE IS NECESSARY TO REMAIN V-F-R. (Location) ALTIMETER (setting).

2. Obtain heading and altitude. Advise the pilot to maintain straight and level flight and to align the heading indicator to agree with the magnetic compass.

PHRASEOLOGY-

MAINTAIN STRAIGHT AND LEVEL FLIGHT. RESET YOUR HEADING INDICATOR TO AGREE WITH YOUR MAGNETIC COMPASS. AFTER YOU HAVE DONE THIS, SAY YOUR HEADING AND ALTITUDE.

3. Determine the weather conditions and the fuel status.

PHRASEOLOGY-

WHAT IS THE WEATHER AT YOUR ALTITUDE AND FUEL REMAINING IN TIME.

4. Advise the pilot to maintain the same heading, verify the aircraft has VOR equipment, and determine the airspeed.

PHRASEOLOGY-

CONTINUE HEADING (degrees). WHAT TYPE OF NAVIGATIONAL EQUIPMENT DO YOU HAVE ON BOARD, AND WHAT IS YOUR AIRSPEED?

5. If the pilot calls on a simplex frequency, such as 122.2, advise the pilot to tune the receiver to the VOR you have selected. Provide the VOR name, frequency, and communication procedures.

PHRASEOLOGY-

CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR V-O-R RECEIVER TO THE (name) V-O-R, FREQUENCY (frequency) IDENTIFICATION (identification). CHECK VOLUME UP AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

NOTE-

If the pilot calls on duplex (122.1), use the VOR the pilot is tuned as the initial VOR.

6. Determine the aircraft's course selector reading.

PHRASEOLOGY-

ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING.

7. Advise the pilot of the aircraft's position.

PHRASEOLOGY-

YOU ARE (direction) OF THE (name) V-O-R.

b. Orientation.

1. Turn the aircraft inbound to the VOR being used. Provide the direction of turn and the heading to be

flown. Advise the pilot to report when established on that heading.

PHRASEOLOGY-

FOR V-O-R ORIENTATION, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. Notify the appropriate control facility. Provide all the required information including the aircraft's position and heading.

3. Verify that the aircraft is established on a line of position to the VOR.

PHRASEOLOGY-

WHAT IS THE POSITION OF YOUR LEFT/RIGHT NEEDLE?

4. Provide heading adjustments as needed for the aircraft to continue inbound to the VOR.

(a) When the pilot indicates the left/right needle is not centered, advise the pilot to recenter needle with a "TO" indication and report the course selector reading.

PHRASEOLOGY-

Pilot response indicates needle not centered.

ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING. (If appropriate) TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED (degrees).

(b) After the aircraft is established on the inbound radial, advise the aircraft to continue on the inbound heading.

PHRASEOLOGY-

CONTINUE HEADING (degrees).

5. Plot line of position.

c. Crossfixing. After the aircraft is established inbound to the VOR, use the following procedures:

1. Advise the pilot to tune the receiver to the VOR you have selected for crossfixing. Provide VOR name, frequency, and lost communications procedures.

PHRASEOLOGY-

CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR V-O-R RECEIVER TO THE (name) V-O-R, FREQUENCY (frequency), IDENTIFICATION (identification). CHECK VOLUME UP. IF COMMUNICATION IS NOT ESTABLISHED IMMEDIATELY, RETURN TO THIS FREQUENCY.

2. Using only the voice feature of the second VOR, establish positive communication with the aircraft.

PHRASEOLOGY-

(Name) RADIO TRANSMITTING ON THE (name) V-O-R. HOW DO YOU HEAR? OVER.

NOTE-

Transmit only on the frequency of the VOR being used for crossfixing, if available.

3. After communication has been reestablished, advise the pilot to recenter the VOR left/right needle and advise the reading.

PHRASEOLOGY-

ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING.

4. If the pilot is transmitting on duplex (122.1) and the cross fix VOR has no voice capability provide the following instructions.

PHRASEOLOGY-

CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR VOR RECEIVER TO THE (name) VOR, FREQUENCY (frequency), IDENTIFICATION (ident). CHECK VOLUME UP AND IDENTIFY THE STATION. ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING (PAUSE).

RETUNE YOUR VOR RECEIVER TO THE (name) VOR, FREQUENCY (frequency), IDENTIFICATION (identification). SAY YOUR AIRCRAFT IDENTIFICATION AND THE (name) VOR COURSE SELECTOR READING.

5. Advise the pilot to continue the inbound heading.

PHRASEOLOGY-

CONTINUE HEADING (degrees).

6. Plot the new line of position from the second VOR, advise the pilot of the aircraft's position, and the safe altitude for orientation in that area.

PHRASEOLOGY-

YOU ARE (miles) (direction) OF THE (name) V-O-R. THE SAFE ALTITUDE FOR ORIENTATIONS IN THAT AREA IS (feet).

NOTE-

The intersection of the two lines of position is the aircraft's position at the time of the second VOR reading.

7. Request the pilot's intentions.

PHRASEOLOGY-

WHAT ARE YOUR INTENTIONS?

5-4-4. GUIDANCE TO AIRPORT

After establishing the aircraft's position and if the pilot requests guidance to the airport:

- a. Plot the course to the airport.

- b. Provide the course guidance information to the pilot.

1. Advise the pilot of the direction of the turn and the heading to the airport.

PHRASEOLOGY-

FOR A HEADING TO THE (name) AIRPORT, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. After the pilot reports established on the heading to the airport, advise the pilot of the position in relation to the airport.

PHRASEOLOGY-

YOU ARE (miles) (direction) OF THE (name) AIRPORT. CONTINUE HEADING (degrees).

3. Continue to provide assistance in the form of pilotage and airport information as necessary.

PHRASEOLOGY-

DO YOU SEE ANY PROMINENT LANDMARKS?

ARE YOU FAMILIAR WITH THE (name) AIRPORT?

(Name) AIRPORT FIELD ELEVATION (feet). IT HAS (number and surface type) RUNWAYS. THE RUNWAY/S RUN (direction). THE AIRPORT IS LOCATED (direction/distance) FROM (landmark visible to the aircraft).

4. Advise the pilot to report the landing airport in sight.

PHRASEOLOGY-

REPORT AIRPORT IN SIGHT.

5. Determine when the pilot no longer needs assistance.

PHRASEOLOGY-

DO YOU REQUIRE FURTHER ASSISTANCE?

6. When the pilot indicates assistance is no longer required, terminate the service. Provide the CTAF frequency, if appropriate, and the local altimeter setting.

PHRASEOLOGY-

(VOR/ADF) ORIENTATION SERVICE TERMINATED. COMMON TRAFFIC ADVISORY FREQUENCY (frequency). ALTIMETER (setting).

NOTE-

CTAF is defined as a UNICOM, Multicom, AFSS/FSS, or ATCT frequency.

7. Notify appropriate control facility of the aircraft's position, termination of services, and the pilot's intentions.